## **Technical Specification**

Outer Body Diameter In (mm)	8.00 (203.2)
Upset Sleeve Diameter In (mm)	8.05-8.25 (204.5-209.6)
Inner Diameter In (mm)	3.00 (76.2)
RPM (max recommended)	160
Length (approx.) Ft (m)	4 (1.2)
Connection	To suit
Internal Yield Pressure Psi (bar)	10,500 (450)
External Collapse Pressure Psi (bar)	10,500 (450)
Max Temp°F (°C)	150 (300)
Max load (tension) Lbf (mT)	1,200,000 (545)
Dynamic Side Load lbf (mT)	14,000 (6.4)
Static Side Load lbf (mT)	20,000 (9)
Torsional Yield	Connection
	-

Note: Technical Specifications are for guidance only and are subject to change without noticeAlternative sizes available on request.

# **Technical Advantages**

- Ultra-low friction
- Super-strong and robust
- Fully encapsulated single-body design
- Casing wear significantly reduced
- Operational torque reduced
- Cased and open-hole safe
- HP/HT

# MonoVolve REDUCER



Advanced drillstring torque isolation



MonoVolve REDUCER is a drillstring sub which reliably reduces the effects of side-loading and high torque associated with rotation of the drill string in the cased and open hole. It's ultra-durable single-bodied, single-sleeved design has been developed specifically with rugged reliability at its core.

MonoVolve REDUCER works to minimise casing wear and reduce damage to the drill string tool joints. Slip-stick effect and torque and drag burden is minimised when drilling complex 3D or extended reach wells thereby extending bit life and increasing ROP.

MonoVolve REDUCER is recommended for use in any application where system performance may be encumbered or hampered by excessive torque due to well conditions or wellbore geometry or where casing wear or tool joint integrity may be at risk such as in extended reach drilling, complex 3D or HP/HT drilling, slot recovery or side-tracking, and in P&A activities.

# **Operator Benefits**

- Casing wear significantly reduced
- Tool joints protected
- Operational torque reduced
- Slip-stick & vibration minimised
- Bit life extended
- ROP increased
- ERD capability enhanced



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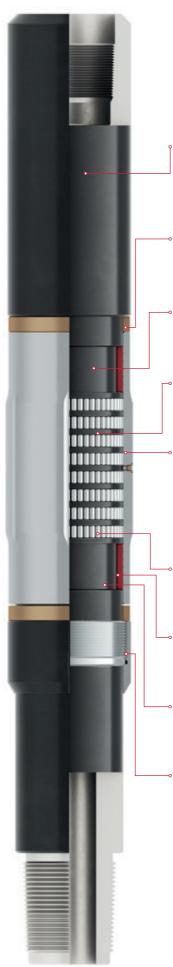
# Operating guide to use

MonoVolve REDUCER is a short sub which is designed to be integrated into the drill string and racked-back for ease of operation during the entire drilling program.

HydroVolve engineers will assist with drill string design with torque and drag analyses performed by our specialists to provide the optimum placement recommendation for MonoVolve REDUCER.



## **Technical Features**



#### Single-bodied premium connection sub

MonoVolve REDUCER is a single-bodied sub fitted with premium connections. The single bodied design ensures maximum strength and maximum reliability and provides a fully sealed chassis for encapsulation of the rolling elements.

#### Spinodal alloy thrust bearing

High performance spinodal alloy bearings are used to provide reliable low-torque resistance to any low-level axial load that may be encountered.

#### Precision machined integral seal races

Seal races are precision-machined integrally to the body to provide perfect sealing and debris exclusion at all times.

#### Precision-machined integral bearing races

Bearing races are precision-machined integrally to the body to provide perfect concentric rolling contact at all times.

#### Solid-state non-rotating sleeve

A solid-state non-rotating sleeve provides a rigid precision-manufactured rolling and sealing surface to ensure minimum friction with maximum longevity in the harshest environments.

The non-rotating sleeve is designed to apply radial load to ONLY the bearing members thereby protecting the seals from adverse radial forces.

## Precision ground rolling elements

Eight races of the highest quality precision ground rolling elements are fitted into the MonoVolve REDUCER giving a 400% factor in bearing load rating.

#### Pressure balanced seals

A unique and patented pressure balanced seal arrangement is utilised to maintain a fully sealed, fully protected oil-filled environment for the precision ground rolling elements to operate in.

## Debris exclusion barriers

High performance polymer debris barriers are fitted out-bound of the bearing seals to prevent well solids from interfering with the performance of the pressure-balanced seals.

### High-torque single member retaining element

A single-bodied high-torque retaining ring is secured behind the non-rotating elements and positively secures all of the precision components in place ensuring the highest possible degree of component security and reliability.